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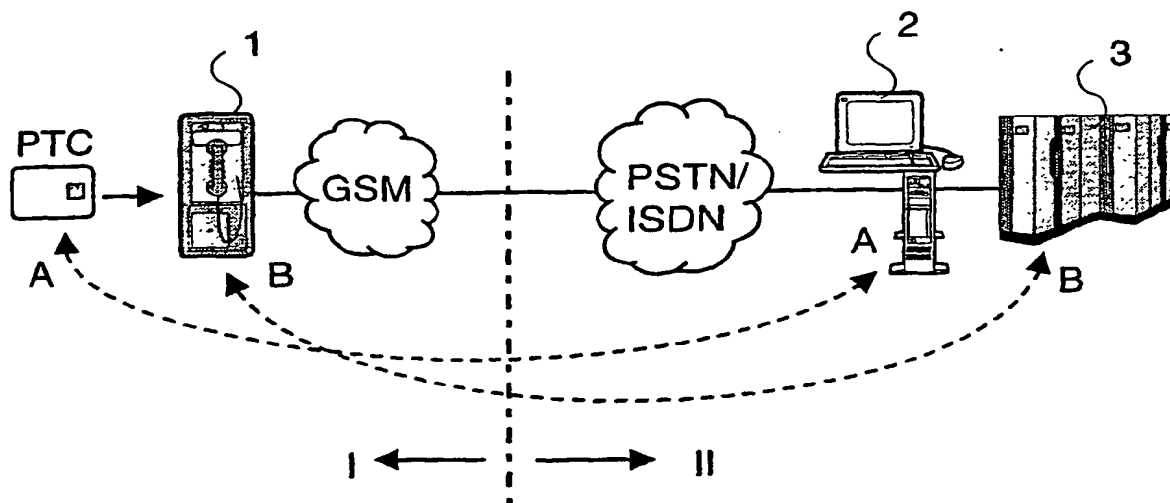
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(54) Title: METHOD FOR DELIVERING SERVICES BY WAY OF PREPAID CHIP CARDS



(57) Abstract: Method for delivering services, by way of prepaid chip cards, between a terminal, accessible to a service recipient, and an infrastructure of the service provider that is not directly accessible to the service recipient, during use of the service wirelessly connected to the terminal. The chip card is introduced into the terminal; the identity and the validity of the chip card are verified; during the use of the chip card, a counter is updated which represents the value of the card at a certain moment; after checking the identity and the validity of the card and/or the identity of the service recipient, the counter is periodically devaluated during the usage of the service. The counter is located in the infrastructure of the service provider not accessible to the service recipient. Examples of services are: offering wireless telephony services by means of prepaid telephone card; payment by means of parking metres; access to MultiMedia columns and the like. The check on the identity of the service recipient may take place in a suitable manner by means of a pin code or biometrical techniques.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Method for delivering services by way of prepaid chip cards.

5 The invention relates to a method for delivering services,
by way of prepaid chip cards, between a terminal accessible to
the service recipient and an infrastructure of the service
provider that is not directly accessible to the recipient, during
use wirelessly connected to the terminal, the method comprising:
a) inputting the chip card into the terminal; b) verifying the
identity and the validity of the chip card and/or the identity of
10 the recipient; c) updating, during use of the chip card, a
counter which represents the value of the card at a certain
moment, and the periodic devaluation of this counter after step
b) during the usage of the service.

15 It is known that the value of such prepaid cards is
regularly represented by a counter on the card which is
devaluated by way of interaction with a terminal, such as a
telephone booth in telephony by way of the telephone-booth
infrastructure.

20 In this case, the terminals contain a so-called Secure
Application Module (SAM), i.e., a chip containing cryptographic
information. In this way, the validity and the value of the card
may be verified.

25 Such methods are known generally and have the following
drawbacks: it often proves to be ever more difficult to safeguard
the cards and SAMs adequately due to the fact that new attacks on
the components are continuously being developed.

Controlling fraud within prepaid card services, therefore,
is a continuous source of care and attention.

30 The invention now overcomes these objections and the method
according to the invention is characterised by the counter being
located in the infrastructure of the service provider not
accessible to the service recipient.

In this way, the counters are centralised in the network,
i.e., stored in the environment of the service provider.

35 The counters, therefore, become less accessible to, and are
less to be influenced by unauthorised third parties.

Therefore, fraud can diminish.

In an advantageous embodiment of the invention, the method
will be applied for wireless telephony, determining the identity

and the validity of the card taking place based on a well-known GSM technique.

In other advantageous embodiments of the invention, the delivery of services comprises payment of parking services through parking meters or access to multimedia columns.

The invention will now be explained, on the basis of the drawing and the description, in further detail.

FIG. 1 schematically shows an advantageous embodiment of the invention.

With reference to FIG. 1, an architecture is shown, within which offering of wireless telephony services by way of Prepaid Telephone Cards (PTC) can be carried out.

In order to make use of a wireless telephony service, a client should enter his prepaid chip card PTC into the terminal, in this case telephone booth 1. The terminal is located in an area I, accessible to the recipient of the service in any appropriate way.

Subsequently, the following processes are carried out:

1. Authentication A-A: the identity and the validity of the card PTC should be verified and, for this purpose, use is being made of GSM architecture, known per se and existing, comprising an authentication server 2 in the infrastructure II of the service provider not directly accessible to the service recipient.
2. Devaluation for counter B-B: for each counter PTC, a counter is updated which is located in the infrastructure of the service provider (back-office system 3). Said counter represents the value of the card PTC at a certain moment. As soon as the authentication process A-A is run through successfully, during usage of the service (in this case telephoning), this counter should be devaluated periodically. This takes place in a manner known per se and will therefore not be described in further detail.

The terminal 1 can be coupled to the fixed infrastructure of the service provider, in any appropriate way, e.g., as indicated in the figure, by way of a GSM network, a transmitting aerial (not shown) and a PSTN/ISDN network. Such networks are known per se to experts, and will not be described in detail. The card PTC can, in this way, prove its identity to the authentication server 2 in the back office 3, by way of the GSM authentication

algorithm known per se. In an advantageous way, the prepaid chip card has for this purpose, the form of a SIM (Secure Identification Module) card. SIM cards are known per se and are located, up till now, in GSM devices. In this advantageous
5 embodiment of the invention, each terminal, in which the chip card is introduced, in fact functions as a GSM device.

The invention offers the following advantages: a) the fact that the counter is present in the network of the service provider, contrary to the known situation, in which the counter
10 is stored on the card, offers a high degree of security, since all counters are located in the infrastructure of the service provider, and therefore are not accessible to the service recipients; b) the GSM authentication algorithm is very secure and is safer than the algorithm such as it is executed between
15 card and SAM; c) it is now no longer necessary to include SAMs in the terminal, so that a possible attack point for frauds is taken away; d) it is possible to upgrade prepaid SIM cards, so that an upgrading functionality can be included in the service.

Checking the identity of the service recipient may
20 advantageously occur with the help of a pin code or biometric techniques.

Various modifications of the method according to the invention will become clear to experts after inspection of the above description and the drawing, and need therefore not be
25 explained in greater detail.

Such modifications shall be deemed within the framework and the scope of protection of the present invention.

CLAIMS

1. Method for delivering services, by way of prepaid chip cards, between a terminal accessible to the service recipient and an infrastructure of the service provider not directly accessible to the service recipient, during use wirelessly connected to the terminal, the method comprising: a) inputting the chip card into the terminal; b) verifying the identity and the validity of the chip card and/or the identity of the service recipient; c) updating during use of the chip card, a counter which represents the value of the card at a certain moment; and, after step b), during the usage of the service, periodically devaluating this counter; being characterised in that the counter is located in the infrastructure of the service provider not accessible to the service recipient.
2. Method according to claim 1, characterised in that the services comprise offering wireless-telephony services.
3. Method according to claim 2, characterised in that the terminal is a telephone booth which, upon use by way of a GSM network, is coupled to the fixed infrastructure of the service provider.
4. Method according to claim 2 or 3, characterised in that step b) is carried out with the help of a GSM-authentication algorithm.
5. Method according to at least one of the claims 2-4, characterised in that step b) is executed in the back office of the service provider.
6. Method according to at least one of the claims 2-5, characterised in that the prepaid chip card is a telephone card.
7. Method according to claim 1, characterised in that the services comprise paying of parking services by way of parking metres.

8. Method according to claim 1, characterised in that the services comprise getting access to MultiMedia services.
- 5 9. Method according to at least one of the claims 1-8, characterised in that the prepaid chip card has the form of a SIM (Secure Identification Module) card.
- 10 10. Method according to at least one of the claims 1-9, characterised in that one checks the identity of the service recipient is checked by means of a pin code.
11. Method according to at least one of the claims 1-9, characterised in that one checks the identity of the service recipient is checked by means of biometric techniques.

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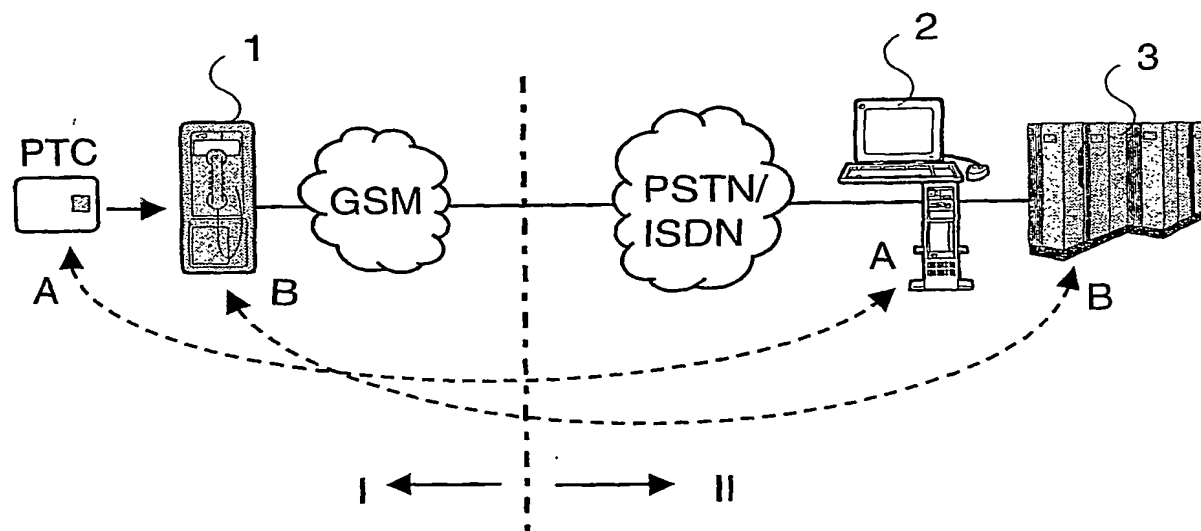


FIG. 1

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 01/01310

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	WO 93 20539 A (T. JONSSON) 14 October 1993 (1993-10-14) the whole document ----	1,3-5,7, 10
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G07F7/08 H04M17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G07F H04M G07B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95 34161 A (CALL PROCESSING) 14 December 1995 (1995-12-14) abstract; claims; figures page 6, line 15 -page 10, line 36 ---	1,2,5,6, 10,11
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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